

Agave arcedianoensis (Agavaceae): Another Brand New Species from Jalisco, Mexico

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INTRODUCTION

Edward Palmer and Cyrus G. Pringle, two American professional plant collectors, in the late 19th century, discovered the richness of the flora of the “Guadalajara” ravine. Many new species were described by Sereno Watson based on their collections, later, in the 20th century, many Mexican and foreign botanist visited and collected at these ravines adjacent to the Guadalajara Metropolitan area (McVaugh, 1952). For this reason it seems somewhat surprising that they had overlooked *Agave arcedianoensis*, which is such a big plant (1.5 m diameter).



Agave arcedianoensis, habitat (Photo : M. Chazaro).

During botanical explorations carried out on the last few years in western Mexico, especially in Jalisco state, some novelties were found, e.g. new state records and new species of *Agave*, described by us or other people. Results of this research project were given by Hernández et al. (2007), who reported 23 species of *Agave* thriving wild in Jalisco, 12 in *Litsea* subgenus and 11 in *Agave* subgenus, of these, 7 seven new state records, namely: 1.- *Agave rhodacantha* Trel., 2.- *A. parryi* Engelm., 3.- *A. wocomahi* Gentry., 4.- *A. salmiana* Otto ex Salm-Dyck, 5.- *A. angustiarum* Trel., 6.- *A. filifera* Salm-Dyck, 7.- *A. geminiflora* (Tagl.) Ker-Gawler, plus 4 new species: *Agave valenciana* Cházaro & A. Vázquez (Cházaro et al., 2005) and *A. vazquezgarciae* Cházaro & J. A. Lomeli (Cházaro et al. (2007), and then two new species (*Agave* sp. nov. ined. from Colimilla ravine and *Agave* sp. nov. ined. from Tequila ravine), now with published names (see below).

In previous issues of this journal, we have published data on: *Agave valenciana* Cházaro & A. Vázquez (Cházaro et al., 2005) and *A. vazquezgarciae* Cházaro & J. Lomeli (Cházaro et al. (2007). In addition, *Agave rzedowskiana* P. Carrillo, Vega & R. Delgad., was described by Carrillo et al. (2003) from Jalisco and Sinaloa, found in the mountains of the Western Sierra Madre (Cházaro et al., 2004).

There are two more new species, that were recently described (late 2007), namely: *Agave arcedianoensis* Cházaro, O. Valencia & A. Vázquez and *Agave chazaroi* A. Vázquez & O. Valencia. However, since the original description of both names, was made in our book: *Agaves of western Mexico* (Vázquez-García et al., 2007), with a limited number of copies and distribution, most botanist and agave fanciers around the world, might not be aware of this fact, therefore the aim of this paper is to present some of this information. Here we provide information on the first novelty. In the near future, we will be preparing a paper on *Agave chazaroi*, to be published in this journal.

RESULTS

Reyna (1990) based on the botanical exploration carried it out by him, on 1987 and 1988, at the ravines adjacent to Guadalajara, Jalisco, reported 4 species of *Agave*: *Agave angustifolia* Haw., *A. guadalajarana* Trel., *A. schidigera* Lem. and *A. vilmoriniana* A. Berger. However, he had found plants of a new species (*A. arcedianoensis*), but as all were sterile, he was never able to collect fertile material to identify this taxon (O. Reyna, 2002, personal communication).

Later on, Oscar M. Valencia, on 17th march 2001, while traveling in his truck along the road descending to the Río Santiago ravine, from San Gaspar to the Arcediano bridge, near Guadalajara Metropolitan Area, at 1230 m, found one plant, close by the road, that had fallen from the cliff during a rain storm. He observed with binoculars many others thriving in a huge rocky cliff at the Colimilla ravine (at Tonalá municipality), then unknown to him, so he communicated the finding to M. Cházaro.



Agave arcedianoensis, infl. (Photo : M. Chazaro).

Then Valencia and Cházaro, on February 5th, 2002, visited this spot and collected sterile material, based on Cházaro and Valencia number 8102 (IBUG and XAL herbaria), erroneously determined by them as *Agave impressa* Gentry and published in a paper with the statement that it was a new record for Jalisco of *A. impressa* (Cházaro and Valencia, 2003).

One June 12, 2002. J. A. Vázquez-García and M. Cházaro, collected fertile material at the same location where Valencia found it. However, plant material was lost at the plant dryers at IBUG where many students dry their plants so the study was postponed.

On April 4th, 2003, M. Cházaro, O. Valencia, Moises Valtierra and Felipe Gómez J., took a field trip to the Colimilla ravine but on the opposite side, that belongs to Zapotlanejo municipality, south El Aguacate, at 1250 m and there collected material as flower buds.

On 9 may 2003, M. Cházaro, G. López-Damián, Julia Etter, Martin Kristen, and Alberto Galván E, at the same locality (south of El Aguacate) collected fertile material (in bloom, G. López D. et al. 48, IBUG); Kristen and Etter knew *A. impressa* very well from the type locality (east of Escuinapa, Sinaloa) and told us that this "century plant" was not at all this species, but rather closer to *A. angustiarum*.

Later on, 24th June 2007, J. A. Vázquez-García and M. Cházaro collected fertile material again this time south of El Aguacate. Material included immature fruits and only then was it suspected that this was an undescribed species. After comparing material with *A. angustiarum*, now with flowers and fruits, we reached the conclusion, that our plant it was a new and narrow endemic species, and we chose the name: *Agave arcedianoensis* Cházaro, O. Valencia & A. Vázquez. *Agave colimillensis* remains as *nomen*

nudum. We did not validate it since there already exists a very similar name, that of *Agave colimana* Gentry, from coastal Jalisco, Colima and Michoacan, and because of similarity in the names it could be confusing (Vázquez-García et al., 2007).

The specific epithet is after the village of Puente (Bridge) Arcediano, Guadalajara county in the Huentitan ravine, a magic and enchanted place where a big dam is under construction now and has caused displacement of many residents from such an historic and cultural landmark.

Plants grow in vertical walls of igneous rock, at 1200-1300 m in a tropical deciduous forest, with *Agave vilmoriniana* (amole), *Tillandsia capitata* (gallitos), *Pittocaulon velatum*, *Ficus petiolaris* (texcalame), *Stenocereus dumortierii* (órgano), *Cephalocereus alensis* (vejito), *Euphorbia tanqahueti* (lechেমaria), *Plumeria rubra* (cacalosuchil), *Mammillaria scrippsiana* (biznaguita), *Bursera fagaroides* (papelillo), etc.



Flowering takes place during April and May, with fruit in June and July.

Distribution: endemic to the Presa (dam) of Colimilla, and recently M. Cházaro and O. Valencia found another population at the Rio Verde ravine, at the Velo de Novia waterfall, near Acatic, Jalisco. Here they observed the plants with binoculars in a 150 m vertical wall; but they were unreachable to collected botanical material. Perhaps more could be found in other parts of the Rio Verde ravine, when more intense exploration by botanist can take place.

Conservation status: Endemic to Barranca Colimilla and Río Verde; known only from three locations: Zapoptltanejo, Tonalá and Acatic. It grows in unreachable vertical cliffs however, landslides, “derrumbes”, are common during the rainy season and increase in frequency with antropoc disturbance (e.g. new roads for access to the Arcediano dam, induced fires and new opening of new fields, “coamilles”, for agriculture). In addition, the building of a new dam may change the microclimate of the area and thus may influence spatial and temporal species composition and turnover (e.g. more aggressive species may out-compete or over-shadow *A. arcadianoensis*).

Agave arcadianoensis has ornamental potential due to the tight and stiff rosette, fleshy leaves with a light green to yellow strip longwise, and red flowers. It does not produce offsets nor bulbils, therefore must be propagated by seeds, however the seeds like in most other species of Mexican agaves has a very high percentage rate of germination. Antonio

Mendoza obtained a high rate of germination of seeds of *A. arcedianoensis* from a pile given from Oscar Valencia.

Agave arcedianoensis belongs to *Littaea* subgenus, *Marginatae* group of Gentry (1982) and its closest relative is *Agave angustiarum*, that lives also in western Mexico but farther south, known so far at southern Jalisco (Manuel M. Dieguez county), Michoacán, Guerrero, State of Mexico, Morelos and Oaxaca states.

Text: Miguel J. Cházaro, J. Antonio Vázquez-García, Oscar M. Valencia P., Raúl Acevedo R., A. G. Valenzuela Z. & Gregorio Nieves H.; fotos: Miguel J. Cházaro

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